

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF MASSACHUSETTS

ADVANCED ION BEAM  
TECHNOLOGY, INC.,

Plaintiff,

v.

VARIAN SEMICONDUCTOR  
EQUIPMENT ASSOCIATES, INC.,  
NORMAN L. TURNER, KENNETH H.  
PURSER, and ALICE W. ENGE and  
ELIZABETH DILL, as Co-Executrixes of the  
Estate of Harald A. Enge,

Defendants.

Civil Action No.

**JURY DEMANDED**

**COMPLAINT**

1. On March 25, 2008, Defendants filed their complaint in Civil Action No. 08-10487-NG in the United States District Court for the District of Massachusetts against Plaintiff Advanced Ion Beam Technology, Inc. ("AIBT") alleging infringement of a patent that they knew was obtained by fraud on the U.S. Patent and Trademark Office ("PTO"). This complaint seeks redress for Defendants' willful exclusionary conduct that caused Defendant Varian Semiconductor Equipment Associates, Inc.'s ("Varian") monopoly power in the ion implantation equipment market to be maintained, enhanced, and/or acquired by diminishing the ability of AIBT and other competitors to fairly compete in the ion implantation equipment market, in violation of Section 2 of the Sherman Act, 15 U.S.C. § 2.

**PARTIES**

2. Plaintiff AIBT is a California corporation, with locations at 81 Daggett Drive, San Jose, California 95134, and at 28 Cherry Hill Drive, Danvers, Massachusetts 01923.

3. On information and belief, Defendant Varian is a Delaware corporation with a

principal place of business at 35 Dory Road, Gloucester, Massachusetts 01930, and holds itself out as the exclusive licensee of U.S. Patent No. 7,301,156 ("the 156 Patent").

4. On information and belief, Defendants Norman L. Turner ("Turner"), Kenneth H. Purser ("Purser"), and Alice W. Enge and Elizabeth Dill as Co-Executrixes of the Estate of Harald A. Enge (collectively "Defendants") hold themselves out to be the owners of the 156 Patent.

5. On information and belief, Defendant Turner is domiciled in Vero Beach, Florida.

6. On information and belief, Defendant Purser is domiciled in Lexington, Massachusetts.

7. On information and belief, the Enge Co-Executrixes, who are also Defendants, are domiciled in Massachusetts.

#### **JURISDICTION AND VENUE**

8. This Court has jurisdiction over the subject matter of these claims under 28 U.S.C. §§ 1331, 1337, 1338 and 1367.

9. These claims contain *Walker Process* antitrust claims under Section 2 of the Sherman Act and are filed pursuant to Sections 4 and 16 of the Clayton Act, 15 U.S.C. § 15 and 15 U.S.C. § 26 respectively, to redress Defendants' anticompetitive conduct in violation of federal antitrust laws, 15 U.S.C. § 1 *et seq.*, and to enjoin Defendants from continuing to commit such violations in the future.

10. Venue for these claims is proper in this Court under 28 U.S.C. §1391 and 15 U.S.C. § 22.

#### **INTERSTATE COMMERCE**

11. During the relevant period, Defendant Varian manufactured and sold substantial numbers of ion beam implantation devices in a continuous and uninterrupted flow of commerce across state and national lines.

12. Defendants' illegal monopolization and attempt to monopolize the market for ion beam implantation devices have substantially affected interstate and foreign commerce.

### **PROCEDURAL BACKGROUND**

13. In a related case, Civil Action No. 08-10487-NG, the Court dismissed the Plaintiffs' claims of infringement and AIBT's declaratory judgment claims by order dated March 5, 2009, pursuant to the parties' joint stipulation and motion for dismissal. AIBT filed amended counterclaims on December 24, 2008, raising for the first time five claims for antitrust violations. AIBT's antitrust counterclaims were dismissed without prejudice on August 4, 2009, and the Court dismissed that case on August 31, 2009. At the time of the filing of this Complaint, AIBT's Motion for Attorneys' Fees and Costs remains pending in that case. AIBT hereby realleges its antitrust claims.

14. AIBT alleges *Walker Process* fraud claims alleging that Defendants attempted in Civil Action No. 08-10487-NG to enforce the 156 Patent that was procured by fraud in an effort to create or gain monopoly power in the ion implantation equipment market (a true and correct copy of the 156 Patent is attached as Exhibit A to this Complaint). AIBT also raises two "sham litigation" claims, alleging that Defendants sought to create or maintain a monopoly in the ion implantation equipment market by enforcing the 156 Patent despite knowing it to be invalid and by filing and maintaining an objectively baseless lawsuit, Civil Action No. 08-10487-NG. Further, AIBT alleges that the Defendants conspired to create or maintain a monopoly in the ion implantation equipment market by engaging in improper exclusionary conduct designed to block AIBT from entering the relevant market.

### **FACTUAL BACKGROUND**

15. Ion beam implantation devices are used to implant ions into a target, such as semiconductor wafers and into materials on glass substrates used in Liquid Crystal Display ("LCD") screens. The system operates by charging ions, such as boron, accelerating the ions toward a target, shaping, purifying, and steering a beam of the accelerated charged particles, and then directing this beam at the surface of the target. The device implants the ions, referred to as dopants, into the target to be doped. For example, in the case of an integrated circuit, the dopant ions are implanted into a silicon wafer or, in the case of an LCD screen, the dopants are

implanted into layers on a glass substrate. The dopants change the properties of the doped material and are vital to the performance of the integrated circuits and display screen.

16. On information and belief, since at least 2006, Varian manufactured 43% of the ion implantation equipment world wide. On information and belief, by 2007 it controlled 64% of this market. Currently, there are only three major competitors in the United States market. Of those three, one competitor is withdrawing from the market and the other competitor has suffered a substantial reduction in market share. On information and belief, sales of ion implantation devices in 2007 exceeded one billion dollars.

17. Ion implantation equipment is very complicated to design and build and requires long lead times to obtain customer qualification for use in fabrication facilities. There are also very few customers, most of whom are tied to their existing suppliers. This makes it difficult for new competitors to enter the market.

18. As with all semiconductor products, customers demand the newest technologies to be more accurate and able to create smaller and smaller semiconductor devices.

19. Currently ion implantation devices must be able to implant a semiconductor wafer size of 300 mm. In addition the devices must be able to generate line widths of 65 nanometers. Ion implanters are evaluated based on the device's ability to generate the purest energy ion beam at various energy levels with the optimal beam current.

20. AIBT developed a product called iPulsar that currently offers the purest ion beam at the optimum beam current. AIBT has offered its products for sale in the relevant market, and is currently in the process of completing customer qualification.

21. On information and belief, Defendant Varian used the improperly obtained 156 Patent to block AIBT's product from entering the marketplace.

**THE 156 PATENT WAS OBTAINED THROUGH FRAUD UPON THE PTO**

22. The Defendant inventors, Norman L. Turner, Kenneth H. Purser, and Harald A. Enge (the "Defendant inventors"), filed the patent application that resulted in the 156 Patent on June 16, 2005.

23. The 156 Patent issued from a continuation U.S. Patent Application No. 11/154,085 (the “085 Continuation Patent Application”) that claims the benefit of the U.S. Patent Application 10/619,702 (the “702 Patent Application”) which in turn claims the benefit of the U.S. Patent Application No. 60/396,322 (the “322 Provisional Application”).

24. On July 17, 2002, the Defendant inventors filed the first patent application in the patent family which was a provisional patent application, the 322 Provisional Application.

25. On July 15, 2003, a utility patent application, the 702 Patent Application, was filed, which claimed the benefit of the 322 Provisional Application.

26. The 702 Patent Application added significant new material to the specification of the 322 Provisional Application.

27. On June 16, 2005, a continuation patent application, the 085 Continuation Patent Application, was filed, which claimed the benefit of the 702 Patent Application.

28. On November 27, 2007, the 085 Continuation Patent Application issued as the asserted 156 Patent.

29. On information and belief, since at least 2002 the Defendant inventors were aware of material prior art affecting the patentability of the claims applied for. The Defendant inventors included false and misleading statements regarding known invalidating prior art in their 322 Provisional Application, filed on July 17, 2002. The Defendant inventors repeated these same false and misleading statements in their 702 Patent Application, filed on July 15, 2003, as well as in their continuation application filed on June 16, 2005. Moreover, during the prosecution of the 702 Patent Application and the 085 Continuation Application which resulted in the 156 Patent, the Defendant inventors intentionally decided not to disclose their knowledge that certain inventions, including the dual bar configuration being claimed in the 085 Continuation Application, were not patentable in light of known prior art.

30. On information and belief, the Defendant inventors deliberately misled the PTO, by either failing to disclose material prior art and/or drawing the patent examiner’s attention away from material aspects of the prior art, such as, for example, U.S. Patent No. 3,541,328 (“the

328 Patent”), in violation of their duty of candor, good faith and honesty to the PTO.

31. The Patent Examiner allowed the claims in the 156 Patent because, as noted in the Notice of Allowability of the 085 Continuation Application (a true and correct copy of which is attached as Exhibit B to this Complaint), the Examiner could not find a number of features in the prior art, including an apparatus containing “an upper magnetic core member”, a “lower magnetic core member spaced apart from said upper core member”, and “a plurality of focusing coil units distributed along” these core members.

32. The Examiner was unable to find several features in the prior art due to the Defendant inventors’ intentional misrepresentations and omissions explained below, even though these features were actually disclosed in the prior art.

33. Had the Defendant inventors not misled the PTO about the prior art, the PTO would not have issued the 156 Patent with coverage that included the dual bar system as described in the 156 Patent.

Misrepresentations Regarding the 328 Patent as Anticipating Claims of the 156 Patent

34. Upon information and belief, statements contained in the Defendant inventors’ Inventor Declarations filed with the PTO pursuant to 37 C.F.R. Section 1.63, are false, and the Defendant inventors signed these declarations (true and correct copies of which are attached as Exhibit C to this Complaint) attesting that they were the true and only inventors of the inventions claimed in the 156 Patent with knowledge that one or more of the pending claims was anticipated by the 328 Patent.

35. Upon information and belief, the Defendant inventors knew the Inventor Declarations were false and/or misleading and nonetheless submitted these declarations containing false material information to the PTO with the intention of deceiving the PTO to obtain allowance and issuance of the 156 Patent.

36. This belief is based upon correspondence wherein Defendant inventor Purser admitted to another inventor, Enge, that the Defendant inventors could not obtain valid patent claims of the scope asserted by Defendants against AIBT because the 328 Patent anticipated the

claims of the 156 Patent. In particular, as described at the February 26, 2009 hearing in Civil Action No. 08-10487-NG (*see* Docket No. 64), the correspondence states as follows: “one of the thin[g]s that they are concerned about is whether there may be patent problems. Sometime ago, Vandepot and Berrian went to Varian, wanted to sell intellectual property which included some type of focusing element, probably that I sensed was centered around your dual bar quadrofold system described in your 1970 patent, the 328 [patent]. . . . when I reviewed your 1970 patent 328, it clearly refers to a plurality of coil units and plurality of power supplies, so that for us to claim this feature as applied to a dual bar structure,’ emphasis by the author, ‘as a feature on our most recent invention is not possible.” (Hr’g Tr. 18: 6-21, a true and correct copy of an excerpt is attached as Exhibit D to this Complaint) (emphasis added).

37. Additionally, in a subsequent letter from Defendant inventor Purser to Enge described at the same hearing, Purser discussed the 328 Patent and stated: “while I guess that this feature was never incorporated into an actual manufactured spectrograph, finding this claim at this late hour is unfortunate for our negotiations, the words written so long ago, eliminate a major unique feature of the patent we had filed and are presently negotiating with Varian to purchase.” (Hr’g Tr. 19: 7-17, Exhibit D) (emphasis added).

38. These letters show that the Defendant inventors intentionally deceived the PTO when they signed the declarations attesting that they were the true and only inventors of the inventions claimed in the 156 Patent with knowledge that one or more of the then pending claims was anticipated by the 328 Patent.

39. The Patent Examiner allowed the claims in the 156 Patent because, as noted in the Notice of Allowability of the 085 Continuation Application, the Examiner could not find a number of features in the prior art, including an apparatus containing “an upper magnetic core member”, a “lower magnetic core member spaced apart from said upper core member”, and “a plurality of focusing coil units distributed along” these core members. *See* Exhibit B.

40. The prior art, including the 328 Patent, disclosed features that the Examiner was unable to find due to the Defendant inventors’ misrepresentations and omissions.

41. The PTO reasonably relied upon the false and misleading statements and declarations submitted by Defendant inventors to the PTO attesting that they invented the inventions claimed in the 156 Patent.

42. Had the Defendant inventors not misled the PTO about the prior art, including the 328 Patent, the PTO would not have issued the 156 Patent with coverage that included the dual bar system as described in the 156 Patent.

43. The Defendant inventors deliberately misled the PTO by failing to disclose their understanding that one or more of the allowed claims of the 702 Patent Application and 085 Continuation Patent Application and that now embodies one or more of the issued claims of the 156 Patent, including but not limited to Claim 1, was anticipated by the 328 patent, in violation of their duty of candor, good faith and honesty to the PTO.

44. Contrary to the declarations of the Defendant inventors and contrary to the representations made to the PTO by the Defendant inventors, one or more of the allowed claims of the 702 Patent Application and 085 Continuation Patent Application and that now embodies one or more of the issued claims of the 156 Patent was anticipated by the 328 patent, and the PTO would not have allowed these claims but for the misrepresentations, false statements and omissions of the Defendant inventors.

Misrepresentations in the 702 Patent Application Regarding the Scope of the 328 Patent

45. Statements made by the PTO during the prosecution of the 156 Patent, including Office Actions dated August 6, 2004 and March 5, 2007, demonstrate that there were questions whether there were “apparatus[es] used for ion implanting comprising: a structure of magnetic material with an upper core and a lower core having long dimensions between their ends and with parallel axis” and having “a plurality of independent current excited coil units” in the prior art. *Detailed Office Action Rejection 085 Continuation Patent Application*, Primary Examiner, March 5, 2007 at para. 3.

46. The Defendant inventors deliberately misled the PTO when they changed their description of material prior art, such as the description of the 328 Patent, in the 702 Patent



Application. For example, the Defendant inventors originally described Figure 6 of the 328 Patent in their 322 Provisional Application (a true and correct copy of the relevant excerpt is attached as Exhibit E to this Complaint) as follows: “Referring to figure 6 of said patent [the 328 Patent] it can be seen that for at least one embodiment the coils for each multipole are connected in series and powered as a single unit.” (emphasis added). In other words, the Defendant inventors recognized that the 328 Patent described two embodiments, one shown in Figure 6 which is less material to the claims of the 156 Patent, and one much more relevant embodiment which is shown in Figures 4 and 5 and described in Claim 4 of the 328 Patent: “wherein said variable magnetic means is arranged so that the current in each of said plurality of electromagnet means is independently controllable.” See Figures 4 and 5 of the 328 Patent, Col. 10:34-37 (emphasis added) (a true and correct copy of the 328 Patent is attached as Exhibit F to this Complaint).

47. The Defendant inventors deliberately misled the PTO when they later narrowed their description of this prior art by describing Figure 6 of the 328 Patent in their 702 Patent Application (a true and correct copy of the relevant excerpt is attached as Exhibit G to this Complaint) as follows: “Specifically, in FIG. 6 of this patent [the 328 Patent] it can be seen the coils for each multipole are connected in series and powered as a single unit.” This later description is misleading because by removing the phrase “for at least one embodiment”, the Defendant inventors suggest that the 328 Patent as a whole only describes coils that must be powered as a single unit. However, the Defendant inventors were aware that the 328 Patent is not so limited. In the words of Defendant inventor Purser, the 328 Patent “clearly refers to a plurality of coil units and plurality of power supplies” (Hr’g Tr. 18: 17-19, Exhibit D). Or, in other words, the 328 Patent describes coils that are independently powered and controllable.

48. The Patent Examiner allowed the claims in the 156 Patent because, as noted in the Notice of Allowability of the 085 Continuation Application, the Examiner could not find a number of features in the prior art, including an apparatus containing “an upper magnetic core member”, a “lower magnetic core member spaced apart from said upper core member”, and “a

plurality of focusing coil units distributed along” these core members. *See* Exhibit B.

49. The prior art, including the 328 Patent, disclosed features such as a dual bar system with coils that are independently powered and controllable that the Examiner was unable to find due to the Defendant inventors’ misrepresentations.

50. The Patent Examiner reasonably relied on the Defendant inventors’ misrepresentations. Had the Defendant inventors not misled the PTO about the 328 Patent, the PTO would not have issued the 156 Patent with coverage that included the dual bar system as described the 156 Patent.

Misrepresentations of Prior Art: White And Panofsky Publications

51. A paper by Nicholas White, et al. entitled *The Control of Uniformity in Parallel Ribbon Ion Beams up to 24 Inches in Size*; 1999 Conference Proceedings of Applications of Accelerators in Research and Industry, American Institute of Physics, p. 830 (1-56396-825-8/99), (the “White Reference”) discusses apparatuses used for ion implanting comprising a structure of magnetic material with an upper core and a lower core having long dimensions between their ends and with a parallel axis and having a plurality of independent current excited coil units. (A true and correct copy of this publication is attached as Exhibit H to this Complaint).

52. The Defendant inventors were aware of the White Reference during their application process as is evident by its mention in the specification of the 156 Patent at column 2 lines 24-31.

53. Defendant inventors misrepresented the contents and scope of the White Reference in the specification of the 156 Patent.

54. The full White Reference was and remains material to the patentability of the 156 Patent.

55. The Defendant inventors intentionally failed to disclose this reference to the PTO as required by 37 C.F.R. § 1.56(a) [R-2] in any Information Disclosure Statement PTO form 1449, including those filed on August 25, 2005 and November 7, 2006. Further, on information

and belief, the Defendant inventors intentionally failed to provide the PTO with a complete copy of this material reference.

56. A paper by W.K. Panofsky et al. in the Journal Review of Scientific Instruments p. 927 V. 30, published in 1959 (the “Panofsky Reference”) discusses apparatuses used for controlling the characteristics of ion beams comprising a structure of magnetic material with an upper core and a lower core having long dimensions between their ends and with a parallel axis and having a plurality of independent current excited coil units. (A true and correct copy of this publication is attached as Exhibit I to this Complaint).

57. The Defendant inventors were aware of the Panofsky Reference as is evident by its mention in the specification of the 156 Patent at column 3 lines 10-28.

58. The Defendant inventors misrepresented the contents and scope of the Panofsky Reference in the specification.

59. The full Panofsky Reference was and remains material to the patentability of the 156 Patent.

60. The Defendant inventors intentionally failed to disclose this reference to the PTO as required by 37 C.F.R. § 1.56(a) [R-2] in any Information Disclosure Statement PTO form 1449, including those filed on August 25, 2005 and November 7, 2006. Further, on information and belief, the Defendant inventors intentionally failed to provide the PTO with a complete copy of this material reference.

61. The Defendant inventors’ intentional and deliberate failure to disclose the prior art White and Panofsky References to the PTO, as well as their misrepresentation of the contents and scope of these references, allowed Defendant inventors to fraudulently obtain issuance of the 156 Patent.

62. The Patent Examiner allowed the claims in the 156 Patent because, as noted in the Notice of Allowability of the 085 Continuation Application, the Examiner could not find a number of features in the prior art, including an apparatus containing “an upper magnetic core member”, a “lower magnetic core member spaced apart from said upper core member”, and “a

plurality of focusing coil units distributed along” these core members. *See* Exhibit B.

63. The prior art, including the above publications, disclosed features, such as a dual bar system with coils that are independently powered and controllable, that the Examiner was unable to find due to Defendant inventors’ omissions.

64. Had the Defendant inventors not misled the PTO about the White Reference and the Panofsky Reference, and had the Defendant inventors provided full copies of the White Reference and the Panofsky Reference, the PTO would not have issued the 156 Patent with coverage that included the dual bar system as described in the 156 Patent.

Misrepresentation of Prior Art: Ionex Quad Magnet

65. At least as early as 1984, General Ionex Corporation, a company believed to be founded and run by Defendant Purser, manufactured and sold a rectangular lens for ion beam control, commonly called a “Quad Magnet,” or “Quad Steerer” which allowed the user to steer, deflect, or focus an ion beam, and to shut-off current to the excitable coils wrapping the short parallel magnetic cores that separated and joined the long parallel magnetic cores of the lens frame (the “Ionex Quad Magnet”).

66. In 1984, Nicholas White (working for Eaton Corporation, Beverly, MA) bought an Ionex Quad Magnet from Kenneth Purser at Ionex.

67. The Ionex Quad Magnet anticipates or renders obvious the purported invention(s) disclosed in the 156 Patent.

68. The Ionex Quad Magnet was and remains material to the patentability of the 156 Patent.

69. Given that Defendant Purser founded and ran the General Ionex Corporation, the Defendant inventors were aware of the Ionex Quad Magnet as material prior art. The Defendant inventors intentionally failed to cite this reference to the PTO as required by 37 C.F.R. § 1.56(a) [R-2] in any Information Disclosure Statement PTO form 1449, including those filed on August 25, 2005 and November 7, 2006, and did so with the intent to deceive.

70. Defendant inventors’ intentional and deliberate failure to disclose the prior art

Ionex Quad Magnet to the PTO allowed the Defendant inventors to fraudulently obtain issuance of the 156 Patent.

71. The Patent Examiner allowed the claims in the 156 Patent because, as noted in the Notice of Allowability of the 085 Continuation Application, the Examiner could not find a number of features in the prior art, including an apparatus containing “an upper magnetic core member”, a “lower magnetic core member spaced apart from said upper core member”, and “a plurality of focusing coil units distributed along” these core members. *See* Exhibit B.

72. The prior art, including the Ionex Quad Magnet, disclosed features described above that the Examiner was unable to find due to Defendant inventors’ omissions.

73. Had the Defendant inventors not omitted the prior art Ionex Quad Magnet, the PTO would not have issued the 156 Patent with coverage that included the dual bar system as described in the 156 Patent.

Intentional Omission of Offer to Sell

74. In February, 2003, Nicholas White contacted Varian seeking to discuss his new invention: an apparatus for focusing, deflecting and aberration-correcting of ion optical components comprising a structure manufactured from only two magnetic cores (the “White 2 Bar Lens”).

75. On February 11, 2003, Varian and Nicholas White executed a nondisclosure agreement specifying that “[n]o license under any patents, trade secrets or copyrights [were] granted or implied by disclosure of Confidential Information” for the purpose of allowing White to disclose to Varian the new technology.

76. By February 26, 2003, at the latest, Nicholas White authored a PowerPoint™ presentation (the “White Proposal”) disclosing the White 2 Bar Lens.

77. On March 6, 2003, Nicholas White delivered the White Proposal to Defendant Purser and Chris Campbell of Defendant Varian, disclosing to them the White 2 Bar Lens.

78. From February to August of 2003, Nicholas White offered to sell his White 2 Bar Lens technology and/or intellectual property to Defendant Varian.

79. The Defendants were aware of the White Proposal and the offer for sale of the 2 Bar Lens technology and/or intellectual property rights as early as March 6, 2003.

80. All new material, and in particular, the claims which are supported by that new material that were added to the 702 Patent Application, has a priority date of July 15, 2003.

81. Nicholas White's offer to sell to Defendant Varian the White 2 Bar Lens technology and/or intellectual property anticipates or renders obvious the purported invention(s) disclosed in the 156 Patent because it described an invention described in the 156 Patent, and, as such, was and remains highly material to the patentability of the 156 Patent.

82. The Defendant inventors intentionally failed to cite this offer for sale to the PTO as required by 37 C.F.R. § 1.56(a) [R-2] in any Information Disclosure Statement PTO form 1449, including those filed on August 25, 2005 and November 7, 2006 and did so with the intent to deceive.

83. The Defendant inventors' intentional and deliberate failure to disclose to the PTO Nicholas White's offer to sell his White 2 Bar Lens technology and/or intellectual property allowed Defendant inventors to fraudulently obtain issuance of the 156 Patent.

84. The Patent Examiner allowed the claims in the 156 Patent because, as noted in the Notice of Allowability of the 085 Continuation Application, the Examiner could not find a number of features in the prior art, including an apparatus containing "an upper magnetic core member", a "lower magnetic core member spaced apart from said upper core member", and "a plurality of focusing coil units distributed along" these core members. *See* Exhibit B.

85. The offer for sale described above disclosed features, such as the structure manufactured from only two magnetic cores, that the Examiner was unable to find due to Defendant inventors' omissions.

86. Had the Defendant inventors not omitted Nicholas White's offer to sell to Varian the White 2 Bar Lens, the PTO would not have issued the 156 Patent with coverage that included the dual bar system as described in the 156 Patent.

Misrepresentations to the PTO Regarding Inventorship

87. Upon information and belief, at the time of prosecution of the 156 Patent, the Defendant inventors deliberately and knowingly omitted a contributing inventor to at least one claim limitation of the 156 Patent, and had continued to fail to correct the inventorship of the 156 Patent to include such omitted inventor, with the intent to deceive the PTO.

88. Defendant inventors knew, or should have known, that Nicholas White contributed to the conception of at least one claim limitation of the 702 Patent Application, the 085 Continuation Patent Application, and the 156 Patent.

89. Defendant inventors knowingly and intentionally failed to name Nicholas White as a co-inventor of at least one claim limitation of the 156 Patent, and, as such, the Defendants were aware that the 156 Patent was unenforceable when they filed this suit.

Defendants Agree to Bring Baseless Infringement Suit

90. On information and belief, on or about 2003 the Defendant inventors entered into a technology license agreement with Defendant Varian. On information and belief, Defendant Varian acquired the 156 Patent in an effort to obtain blocking intellectual property rights in order to increase its dominant market share and stifle competition. At the time of this agreement, Defendant Varian knew or, unless recklessly indifferent, should have known of the fraud perpetrated by the Defendant inventors on the PTO. As a result of the agreement, all the Defendants benefited from the scheme to keep AIBT out of the ion implantation market in the form of increased royalty revenues and profits.

91. On information and belief, Defendant Varian knew of or was aware of the initial fraud prior to filing its lawsuit against AIBT, but elected to proceed with the lawsuit in an attempt to block AIBT's entry into the ion beam market and stifle competition.

92. On information and belief, Defendant Varian became aware of the fraud perpetrated by the Defendant inventors on the PTO when it conducted an analysis of the 156 Patent prior to entering into the technology licensing agreement with the Defendant inventors, and when it conducted its pre-suit investigation pursuant to Fed. R. Civ. P. 11. Further, Defendant Varian became aware of the fraud on the PTO when it assumed responsibility from

the Defendant inventors for prosecuting the 156 Patent, and when its patent counsel, who are from the same firm as Defendants' litigation counsel, began prosecuting patents in the same family as the 156 Patent.

93. Despite the Defendants' knowledge that the 156 Patent was procured through fraud and is invalid, they filed this patent infringement action against AIBT asserting the invalid 156 Patent.

94. At the time the patent infringement action was filed it was objectively baseless because: (a) the 156 Patent was invalid and the Defendants knew it was invalid; (b) AIBT's products did not -- and still do not -- infringe the 156 Patent and Defendants knew about AIBT's non-infringement; and (c) prior to filing the patent infringement action, Defendants failed to undertake an adequate infringement analysis; thus, the litigation was filed in the absence of any evidence or good faith belief that the allegations made by the Defendants were true.

#### Relevant Market

95. The relevant product market is ion implantation equipment for implanting ions into semiconductor wafers.

96. The relevant geographic market is worldwide.

97. Significant barriers to entry exist in the relevant market, including large capital costs and advanced technical know-how, such that, Defendants' attempt to limit or destroy AIBT's ability to compete in this market by subjecting AIBT to the high costs of litigation via its improper patent infringement action against AIBT caused Defendant Varian's monopoly power in the market to grow.

#### Varian's Monopoly Position

98. On information and belief, Defendant Varian is the dominant supplier of ion implantation equipment for implanting ions onto semiconductor wafers in the relevant market, enjoying at least a 64% market share since at least 2007. Varian's annual report for the 2008 fiscal year (a true and correct copy of an excerpt is attached as Exhibit J to this Complaint) states that Varian holds a 65% revenue market share for ion implantation equipment. The annual



report indicates that there are very few competitors in the ion implantation equipment market, stating that this market is “characterized by a small number of large companies.” Exhibit J.

99. On information and belief, Defendant Varian has held a dominant position in the relevant market since at least 2006.

100. Because of its dominant position, Defendant Varian is able to raise and maintain prices above competitive levels. By limiting or destroying competition from AIBT, such ability will continue or increase.

#### Defendants’ Harm to AIBT and to the Marketplace

101. AIBT is a start-up company and Defendants’ baseless patent infringement suit was motivated by an intent to preserve Defendant Varian’s existing monopoly position and/or gain even more monopoly power in the ion implanter market by eliminating competition from AIBT, a nascent competitor. In particular, even though Defendants’ patent infringement action was objectively baseless in that no reasonable litigant could realistically expect to prevail, Defendants improperly used the litigation process in Civil Action No. 08-10487-NG as a competitive weapon against AIBT to harm AIBT’s business and to prevent the introduction of a superior product into the relevant market which would create competition in this market.

102. Defendants filed their baseless infringement suit almost immediately after AIBT’s sole existing customer, Taiwan Semiconductor Manufacturing Company Limited (“TSMC”) agreed to purchase AIBT’s iPulsar product. TSMC is one of the largest and most important customers in the relevant market. AIBT and Varian directly compete for TSMC’s business. As mentioned in a Reuters Analyst Research Report dated October 31, 2008, “VSEA [Varian] expects to end CY08 with overall market share of 69%, with the biggest drivers for market share coming from high current and high energy applications. For high energy, VSEA expects to double market share to 26% in CY08. The only blemish that we have seen on the competitive front is the evaluation of AIBT tools at TSMC (TSM, NR).” (A true and correct copy of the Analyst Research Report Snapshot is attached as Exhibit K to this Complaint).

103. As described below, the Defendants’ baseless suit delayed AIBT’s entry into the

relevant market. In particular, Defendants' actions caused injury to AIBT and the relevant market by: (1) subjecting AIBT to the costs and burdens of defending itself against a patent infringement action based on the fraudulently-procured and invalid 156 Patent, the costs associated with providing its customer an analysis of AIBT's technology, and the costs created by AIBT's delayed entry into the relevant market, (2) creating doubt in the minds of AIBT's sole current customer, (3) causing delay to AIBT's negotiations with its sole current customer and slowing down AIBT's technical service and assistance to its sole current customer and the progress of research and development by depleting AIBT's human resources, (4) hindering AIBT's ability to convince its sole current customer to accept and purchase AIBT's product, thereby damaging AIBT's relationship with its sole current customer, which may ultimately prevent the qualification of AIBT's current product, and therefore, eliminate AIBT's current product from the marketplace, (5) potentially preventing the introduction of a superior product with lower sale price into the marketplace, and (6) providing Defendant Varian with the ability to raise and maintain prices above competitive levels.

104. Upon information and belief, Defendants' baseless infringement suit created doubt in the minds of AIBT's existing and potential customers about AIBT's products. In particular, Kevin Chang, Defendant Varian's country manager for Taiwan at the relevant time, raised the topic of Defendants' infringement suit against AIBT with TSMC. As a result of the Defendants' baseless infringement suit, TSMC delayed AIBT's qualification of the iPulsar product by requiring AIBT to first conduct an in-depth analysis of AIBT's iPulsar product, to assure TSMC that there were no infringement issues. TSMC further indicated that it would require a similar analysis of other AIBT product technology. The integration of AIBT's iPulsar product into the TSMC system was delayed because AIBT was required to divert its personnel from the integration project to respond to Defendants' baseless infringement suit. In May 2009, TSMC's procurement department asked AIBT to provide the status of the Defendants' infringement suit against AIBT as well.

105. Furthermore, another potential customer, PowerChip Semiconductor Corporation

(“PSC”) registered in Taiwan, also raised the issue of Defendants’ infringement suit against AIBT when AIBT provided a demonstration plan of the iPulsar product to PSC around the middle of 2008. In particular, the deputy sales manager of PSC expressed concern regarding whether AIBT’s iPulsar product infringes the 156 Patent. As such, the demonstration plan of AIBT’s iPulsar product was not activated until after the dismissal of Defendants’ baseless infringement suit against AIBT.

106. These extra hurdles delay the acceptance and qualification of AIBT’s products. These delays harm AIBT by forcing AIBT to use more of its capital resources without incoming revenue, a significant burden for a nascent company like AIBT. These delays also harm AIBT’s relationships with its existing and potential customers by impeding the negotiation and acceptance process and potentially driving up costs. Finally, these delays harm AIBT’s existing and potential customers by postponing and/or preventing their use of AIBT’s superior product, the iPulsar, which offers the purest ion beam at the optimum beam current. By hindering the introduction of a superior product, the Defendants’ baseless infringement suit prevents manufacturers from having the ability to produce consumer electronics in a more efficient and cost effective manner. Only after March 5, 2009, when the Court dismissed the Defendants’ claims of infringement and AIBT’s declaratory judgment claims pursuant to the parties’ joint stipulation and motion for dismissal, AIBT’s existing and potential customers began to accept the iPulsar products, and another potential customer, PSC, reopened the demonstration plan of AIBT’s iPulsar product and asked AIBT to deliver one demonstration unit to PSC for further evaluation.

107. In short, the Defendants’ baseless infringement suit created doubt in the minds of AIBT’s existing customer, caused harmful delays to AIBT and its existing and potential customers, hindered AIBT’s ability to convince its existing and potential customers to accept and purchase AIBT’s superior product, and reinforced Defendant Varian’s ability to raise and maintain prices above competitive levels, thereby harming AIBT, competition, and the relevant market.

**FIRST CLAIM FOR RELIEF**

**(Violation of Section 2 of the Sherman Act – *Walker Process* Claim for Monopolization)**

108. AIBT incorporates by reference paragraphs 19 through 107, above.

109. Defendant Varian possesses monopoly power in the relevant market, maintaining a dominant share of a market with high entry barriers.

110. As alleged above, the allowance of the 156 Patent by the PTO was procured by the Defendant inventors by means of fraudulent statements and declarations submitted to the PTO and intentional omissions and misrepresentations regarding prior art material to the 156 Patent. For example, as described in detail above, the Defendants misled the PTO about the scope of the 328 Patent and the about the White and Panofsky publications, and omitted material prior art such as Ionex Quad Magnet, White and Panofsky publications and Nicholas White's offer to sell to Defendant Varian the White 2 Bar Lens.

111. A reasonable examiner would consider the subject matter of these statements and omissions highly material to the allowance of the 702 Patent Application and 085 Continuation Application as a patent.

112. As alleged above, the Defendant inventors made the above misrepresentations and omissions and submitted the false statements and declarations to the PTO with the intention of deceiving the PTO to obtain allowance of the 702 Patent Application and 085 Continuation Application as a patent.

113. The Patent Examiner allowed the claims in the 156 Patent because, as noted in the Notice of Allowability of the 085 Continuation Application, the Examiner could not find a number of features in the prior art, including an apparatus containing "an upper magnetic core member", a "lower magnetic core member spaced apart from said upper core member", and "a plurality of focusing coil units distributed along" these core members. *See* Exhibit B.

114. The Examiner was unable to find several features in the prior art due to the Defendant inventors' intentional misrepresentations and omissions explained above, even though

these features were actually disclosed in the prior art.

115. Had the Defendant inventors not misled the PTO about the prior art, the PTO would not have issued the 156 Patent with coverage that included the dual bar system as described in the 156 Patent.

116. On November 27, 2007, the PTO issued the asserted 156 Patent relying on the false and misleading statements and declarations submitted by the Defendant inventors.

117. By asserting a patent that they knew was obtained by fraud, Defendants have engaged in willful exclusionary conduct that has caused Varian's monopoly power in the ion implantation equipment market to be maintained, enhanced, and/or acquired. Further, Defendants' exclusionary conduct has had the intended effect, significantly diminishing the ability of AIBT and other competitors to fairly compete in the relevant market, in violation of Section 2 of the Sherman Act, 15 U.S.C. § 2.

118. As alleged above, a Varian representative warned AIBT's sole customer about the suit asserting the 156 Patent against AIBT, thereby hindering AIBT's ability to convince vulnerable customers to switch to AIBT's product without penalty from Varian.

119. Defendants' actions caused injury to AIBT and the relevant market by: (1) subjecting AIBT to the costs and burdens of defending itself against a patent infringement action based on the fraudulently-procured and invalid 156 Patent, the costs associated with providing its customer an analysis of AIBT's technology, and the costs created by AIBT's delayed entry into the relevant market, (2) creating doubt in the minds of AIBT's sole current customer, (3) causing delay to AIBT's negotiations with its sole current customer and slowing down AIBT's technical service and assistance to its sole current customer and the progress of research and development by depleting AIBT's human resources, (4) hindering AIBT's ability to convince its sole current customer to accept and purchase AIBT's product, thereby damaging AIBT's relationship with its sole current customer, which may ultimately prevent the qualification of AIBT's current product, and therefore, eliminate AIBT's current product from the marketplace, (5) potentially preventing the introduction of a superior product with much lower price into the marketplace, and (6)

providing Defendant Varian with the ability to raise and maintain prices above competitive levels.

120. As a direct and proximate result of Defendants' unlawful conduct in violation of 15 U.S.C. § 2, AIBT has suffered damages and, unless Defendants are enjoined, will continue to suffer damages.

### **SECOND CLAIM FOR RELIEF**

#### **(Violation of Section 2 of the Sherman Act –*Walker Process* Claim for Attempted Monopolization)**

121. AIBT incorporates by reference paragraphs 19 through 120, above.

122. Defendants' conduct, as discussed above, violates Section 2 of the Sherman Act (15 U.S.C. § 2).

123. By attempting to enforce a patent that it knows was obtained by fraud, Varian specifically intended to acquire monopoly power in the ion implantation equipment market.

124. Because of Varian's dominant position in the relevant market, the high entry barriers in the market, and AIBT's entry status in a market with few other entrants, there is a dangerous probability that, left to its own devices, Varian would have succeed in this attempt.

### **THIRD CLAIM FOR RELIEF**

#### **(Violation of Section 2 of the Sherman Act – “Sham Litigation” Claim for Monopolization)**

125. AIBT incorporates by reference paragraphs 19 through 124, above.

126. Defendants' conduct, as discussed above, violates Section 2 of the Sherman Act (15 U.S.C. § 2).

127. As described above, Varian possesses monopoly power in the relevant market, maintaining a dominant share of a market with high entry barriers.

128. By asserting a patent that they knew is invalid and/or not infringed, Defendants filed and maintained an objectively baseless lawsuit in an attempt to interfere directly with AIBT's business. Defendants have thereby caused Varian's monopoly power in the ion implantation equipment market to be maintained, enhanced, and/or acquired.

129. As alleged above, a Varian representative warned AIBT's sole customer about the suit asserting the 156 Patent against AIBT, thereby hindering AIBT's ability to convince vulnerable customers to switch to AIBT's product without penalty from Defendant Varian.

130. Defendants' actions caused injury to AIBT and the relevant market by: (1) subjecting AIBT to the costs and burdens of defending itself against a patent infringement action based on the fraudulently-procured and invalid 156 Patent, the costs associated with providing its customer an analysis of AIBT's technology, and the costs created by AIBT's delayed entry into the relevant market, (2) creating doubt in the minds of AIBT's sole current customer, (3) causing delay to AIBT's negotiations with its sole current customer and slowing down AIBT's technical service and assistance to its sole current customer and the progress of research and development by depleting AIBT's human resources, (4) hindering AIBT's ability to convince its sole current customer to accept and purchase AIBT's product, thereby damaging AIBT's relationship with its sole current customer, which may ultimately prevent the qualification of AIBT's current product, and therefore, eliminate AIBT's current product from the marketplace, (5) potentially preventing the introduction of a superior product with a much lower price into the marketplace, and (6) providing Defendant Varian with the ability to raise and maintain prices above competitive levels.

#### **FOURTH CLAIM FOR RELIEF**

##### **(Violation of Section 2 of the Sherman Act –“Sham Litigation” Claim for Attempted Monopolization)**

131. AIBT incorporates by reference paragraphs 19 through 130, above.

132. Defendants' conduct, as discussed above, violates Section 2 of the Sherman Act (15 U.S.C. § 2).

133. By asserting a patent that they knew is invalid and/or not infringed, Defendants filed and maintained an objectively baseless lawsuit in an attempt to interfere directly with AIBT's business. By so doing, Defendants specifically intended to acquire monopoly power or maintain or enhance Varian's monopoly power in the ion implantation equipment market.

134. Because of Varian's dominant position in the relevant market, the high entry barriers in the market, and AIBT's entry status in a market with few other entrants, there is a dangerous probability that, left to their own devices, Defendants would have succeeded in this attempt.

#### **FIFTH CLAIM FOR RELIEF**

##### **(Violation of Section 2 of the Sherman Act – Conspiracy to Monopolize)**

135. AIBT incorporates by reference paragraphs 19 through 134, above.

136. Defendants' conduct, as discussed above, violates Section 2 of the Sherman Act (15 U.S.C. § 2).

137. Defendants agreed to engage in improper exclusionary conduct with the intent to monopolize the ion implantation equipment market. In particular, despite Defendants' knowledge that the 156 Patent was procured through fraud and is invalid, the Defendants agreed to file and then filed the baseless patent infringement action against AIBT in Civil Action No. 08-10487-NG asserting the invalid 156 Patent with the intent to create and/or maintain a monopoly in the ion implantation market.

138. As alleged above, on or about 2003 the Defendant inventors entered into a technology license agreement with Defendant Varian. As a result of the technology license agreement and the agreement to file and maintain the baseless patent infringement action against AIBT, all the Defendants benefited from the scheme to keep AIBT out of the ion implantation market in the form of increased royalty revenues and profits. At the time of this agreement, Defendant Varian knew or, unless recklessly indifferent, should have known of the fraud perpetrated by the Defendant inventors on the PTO.

139. On information and belief, Defendant Varian became aware of the fraud perpetrated by the Defendant inventors on the PTO when it conducted an analysis of the 156 Patent prior to entering into the technology licensing agreement with the Defendant inventors, and when it conducted its pre-suit investigation pursuant to Fed. R. Civ. P. 11. Further, Defendant Varian became aware of the fraud on the PTO when it assumed responsibility from



the Defendant inventors for prosecuting the 156 Patent, and when its patent counsel, who are from the same firm as Defendants' litigation counsel, began prosecuting patents in the same family as the 156 Patent.

140. Despite the Defendants' knowledge that the 156 Patent was procured through fraud and is invalid, they filed this patent infringement action against AIBT asserting the invalid 156 Patent.

141. Defendants have conspired with one another in a deliberate effort to further Varian's monopoly power in the relevant market, exclude AIBT from the relevant market, and stifle competition. The acts alleged above constitute overt acts in furtherance of the conspiracy.

#### **DEMAND FOR JURY TRIAL**

142. Pursuant to Fed. R. Civ. P. 38, a jury trial is demanded on all issues triable to a jury.

#### **PRAYER FOR RELIEF**

143. WHEREFORE, AIBT prays for the entry of judgment as follows:

A. Issuing a certificate correcting the inventorship of the 156 Patent to add Nicholas White as an inventor to the 156 Patent pursuant to 35 U.S.C. § 256;

B. Declaring that Defendants have attempted to enforce the 156 Patent in bad faith, knowing that the patent is invalid, and with an intent to monopolize in violation of Section 2 of the Sherman Act, entitling AIBT to treble damages under Section 4 of the Clayton Act;

C. Declaring this an exceptional case pursuant to 35 U.S.C. § 285, entitling AIBT to its costs of suit, including attorneys' fees;

D. Awarding AIBT its actual and compensatory damages according to proof at trial, including without limitation its reasonable attorneys' fees, expenses and costs incurred in this action pursuant to 15 U.S.C. § 15(a) and 35 U.S.C. § 285;

E. Awarding AIBT treble its actual damages;

F. Awarding AIBT pre- and post-judgment interest as permitted by law;

G. That Defendants and each of its officers, directors, employees, agents, servants,

alter egos, and attorneys, and each person in active concert or participation with any of them, be restrained from further prosecuting or instituting any actions against AIBT which claim that the 156 Patent is valid and/or infringed by AIBT.

H. Granting AIBT such other action and further relief as this Court may deem just and proper, or that AIBT may be entitled to as a matter of law or equity.

**DEMAND FOR JURY TRIAL**

AIBT hereby requests a trial by jury.

Dated: August 31, 2009

ADVANCED ION BEAM TECHNOLOGY, INC.  
By Its Attorneys,

/s/ Todd S. Holbrook

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